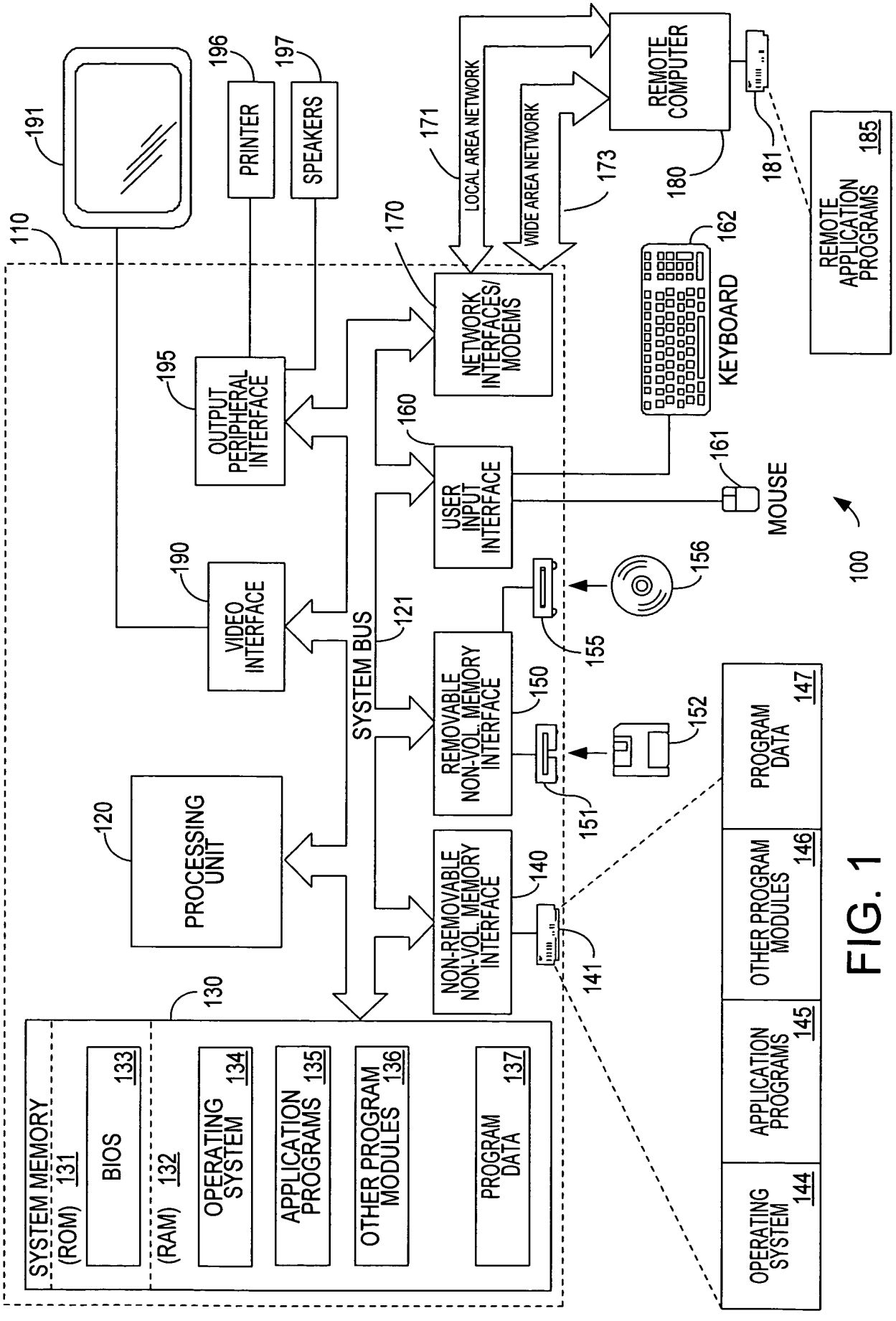
110
191
196
PRINTER
197
SPEAKERS
171
LOCAL AREA NETWORK
WIDE AREA NETWORK
173
REMOTE COMPUTER
180
181
REMOTE APPLICATION PROGRAMS
185
162
KEYBOARD
161
MOUSE
170
NETWORK INTERFACES/ MODEMS
195
OUTPUT PERIPHERAL INTERFACE
160
USER INPUT INTERFACE
190
VIDEO INTERFACE
121
SYSTEM BUS
156
155
150
REMOVABLE NON-VOL. MEMORY INTERFACE
152
151
120
PROCESSING UNIT
140
NON-REMOVABLE NON-VOL. MEMORY INTERFACE
141
100
130
SYSTEM MEMORY
(ROM) 131
BIOS 133
(RAM) 132
OPERATING SYSTEM 134
APPLICATION PROGRAMS 135
OTHER PROGRAM MODULES 136
PROGRAM DATA 137
OPERATING SYSTEM 144
APPLICATION PROGRAMS 145
OTHER PROGRAM MODULES 146
PROGRAM DATA 147

FIG. 1

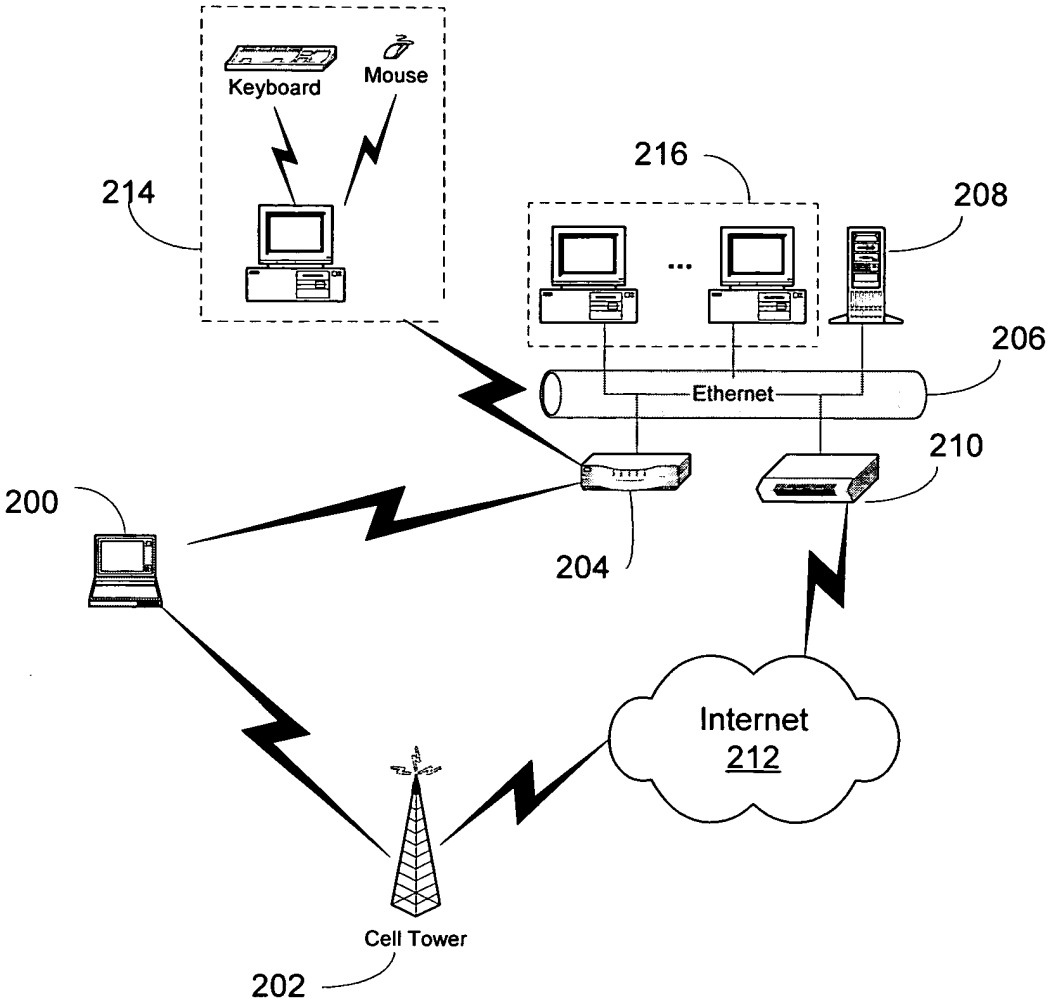
Keyboard
Mouse
214
216
208
206
Ethernet
210
200
204
Internet
212
Cell Tower
202

FIG. 2

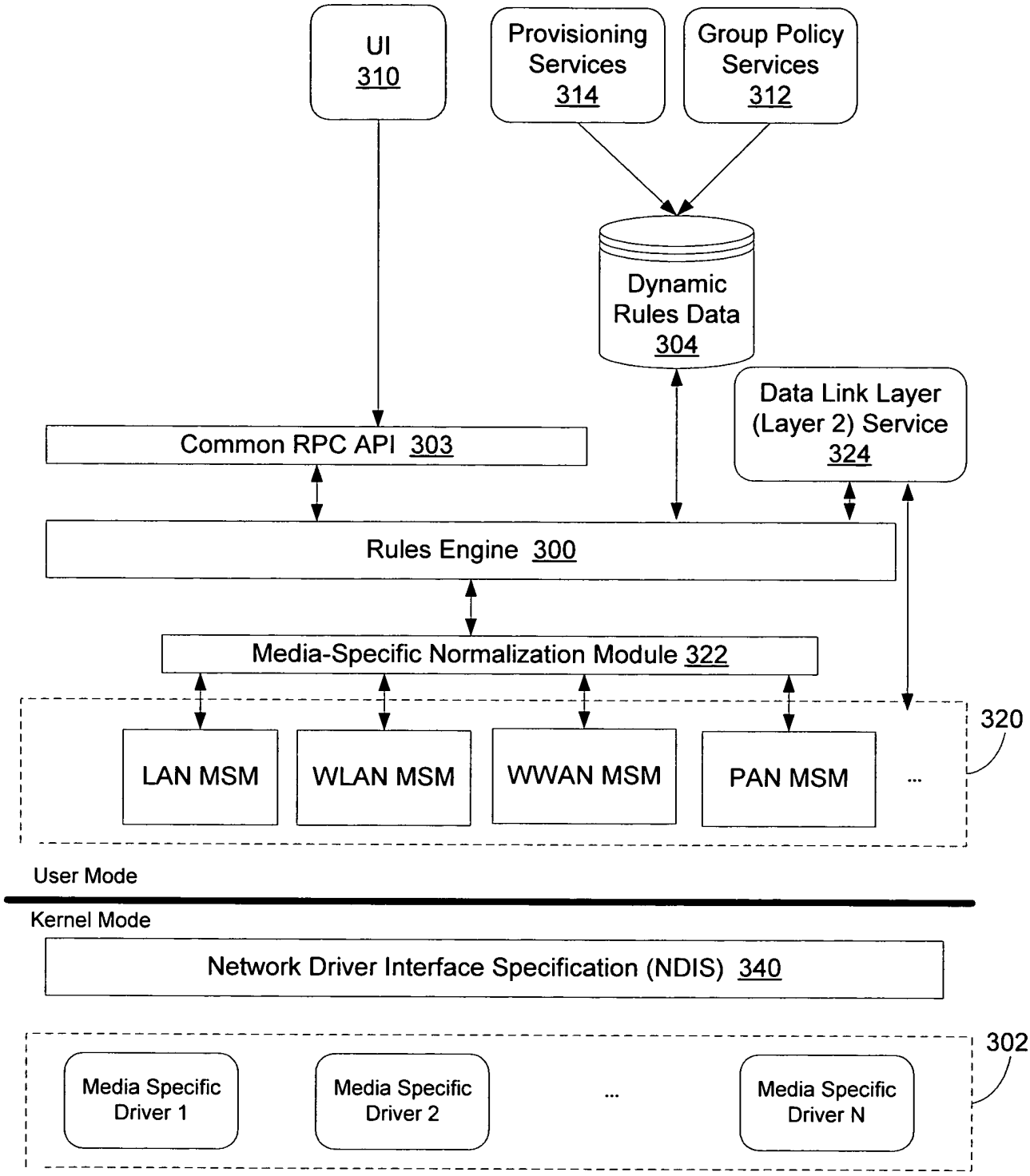
UI
310
Provisioning Services
314
Group Policy Services
312
Dynamic Rules Data
304
Data Link Layer (Layer 2) Service
324
Common RPC API 303
Rules Engine 300
Media-Specific Normalization Module 322
LAN MSM
WLAN MSM
WWAN MSM
PAN MSM
...
320
User Mode
Kernel Mode
Network Driver Interface Specification (NDIS) 340
Media Specific Driver 1
Media Specific Driver 2
...
Media Specific Driver N
302

FIG. 3

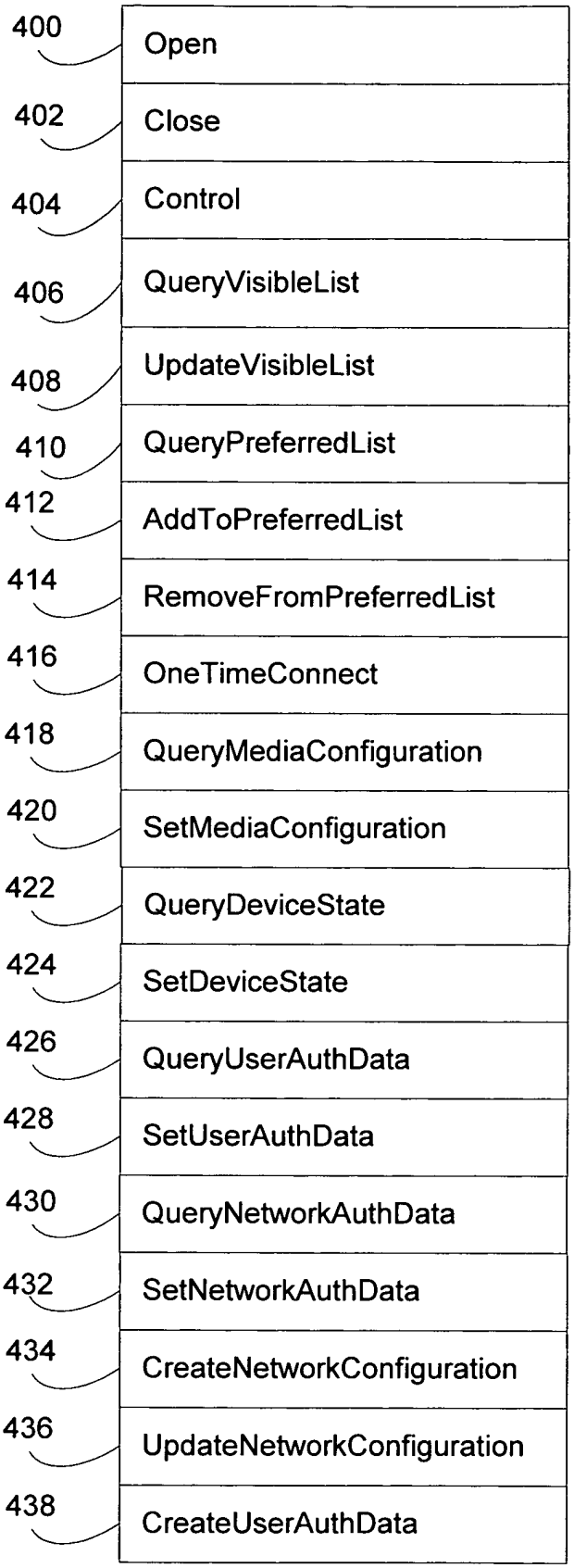
400
Open
402
Close
404
Control
406
QueryVisibleList
408
UpdateVisibleList
410
QueryPreferredList
412
AddToPreferredList
414
RemoveFromPreferredList
416
OneTimeConnect
418
QueryMediaConfiguration
420
SetMediaConfiguration
422
QueryDeviceState
424
SetDeviceState
426
QueryUserAuthData
428
SetUserAuthData
430
QueryNetworkAuthData
432
SetNetworkAuthData
434
CreateNetworkConfiguration
436
UpdateNetworkConfiguration
438
CreateUserAuthData

FIG. 4

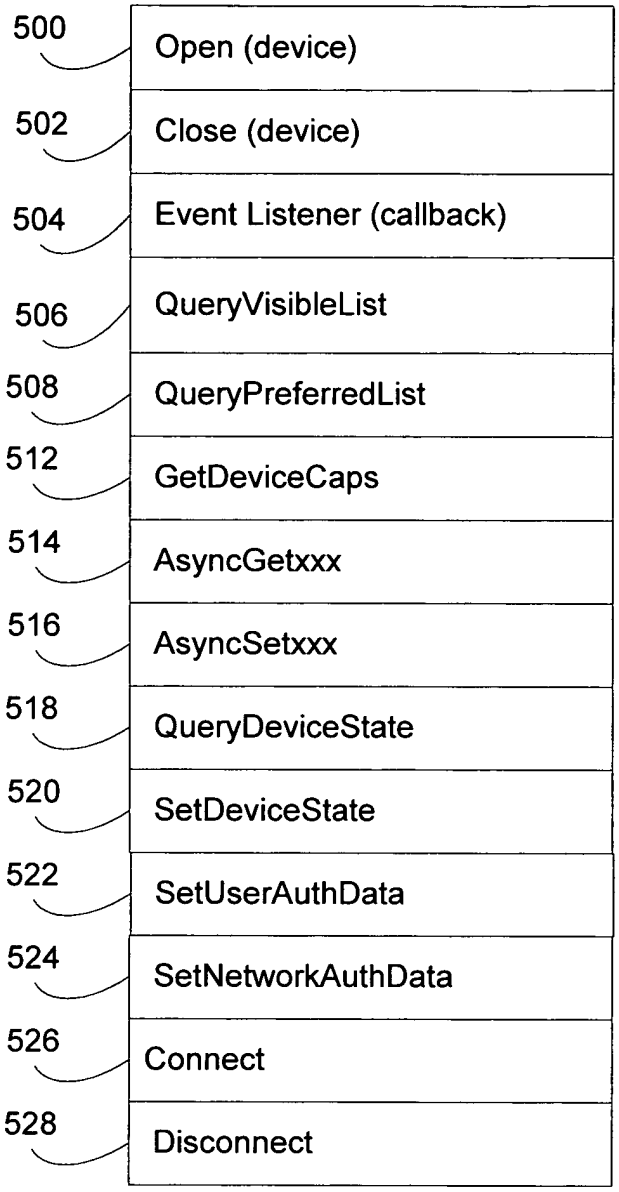
500
Open (device)
502
Close (device)
504
Event Listener (callback)
506
QueryVisibleList
508
QueryPreferredList
512
GetDeviceCaps
514
AsyncGetxxx
516
AsyncSetxxx
518
QueryDeviceState
520
SetDeviceState
522
SetUserAuthData
524
SetNetworkAuthData
526
Connect
528
Disconnect

FIG. 5

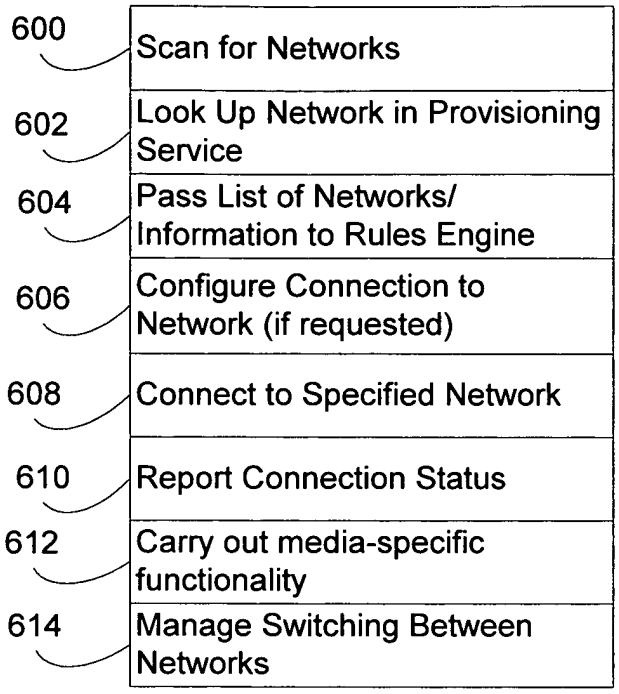
600
Scan for Networks
602
Look Up Network in Provisioning Service
604
Pass List of Networks/ Information to Rules Engine
606
Configure Connection to Network (if requested)
608
Connect to Specified Network
610
Report Connection Status
612
Carry out media-specific functionality
614
Manage Switching Between Networks

FIG. 6

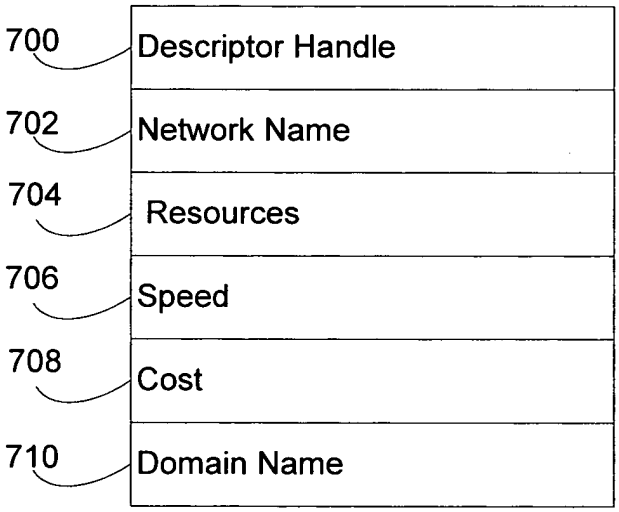
700
Descriptor Handle
702
Network Name
704
Resources
706
Speed
708
Cost
710
Domain Name

FIG. 7

Scenario	Scenario examples	Scenario Parameters
Indicate preference order of media	Prefer WLAN over WWAN, prefer fastest connection, prefer 802.11a over 802.11b	- link speed - media type (wired over wireless) - .11 type (a/b/g) - cost (TBC)
Indicate preference order of network order across multiple media	Prefer corporate network over WISP	- SSID (WLAN) - Provider & APN (WWAN)
Indicate preference order of network by location	Prefer WISP A over WISP B in US, vice-versa in Europe	- Location (home, work, physical location, etc.)
Indicate preference order of logical network.	Prefer corporate network over WISP A over WISP B. Network provider decides which physical network (WLAN or WWAN) to use based on XML provisioning	- XML provisioning files from wireless provider - Business logic to allow dynamic network selection
Indicate preference based upon time/day	Prefer WWAN network provider A on weekdays and WWAN network provider B on weekends and evenings	- Day - Time - Media types (WWAN)

FIG. 8

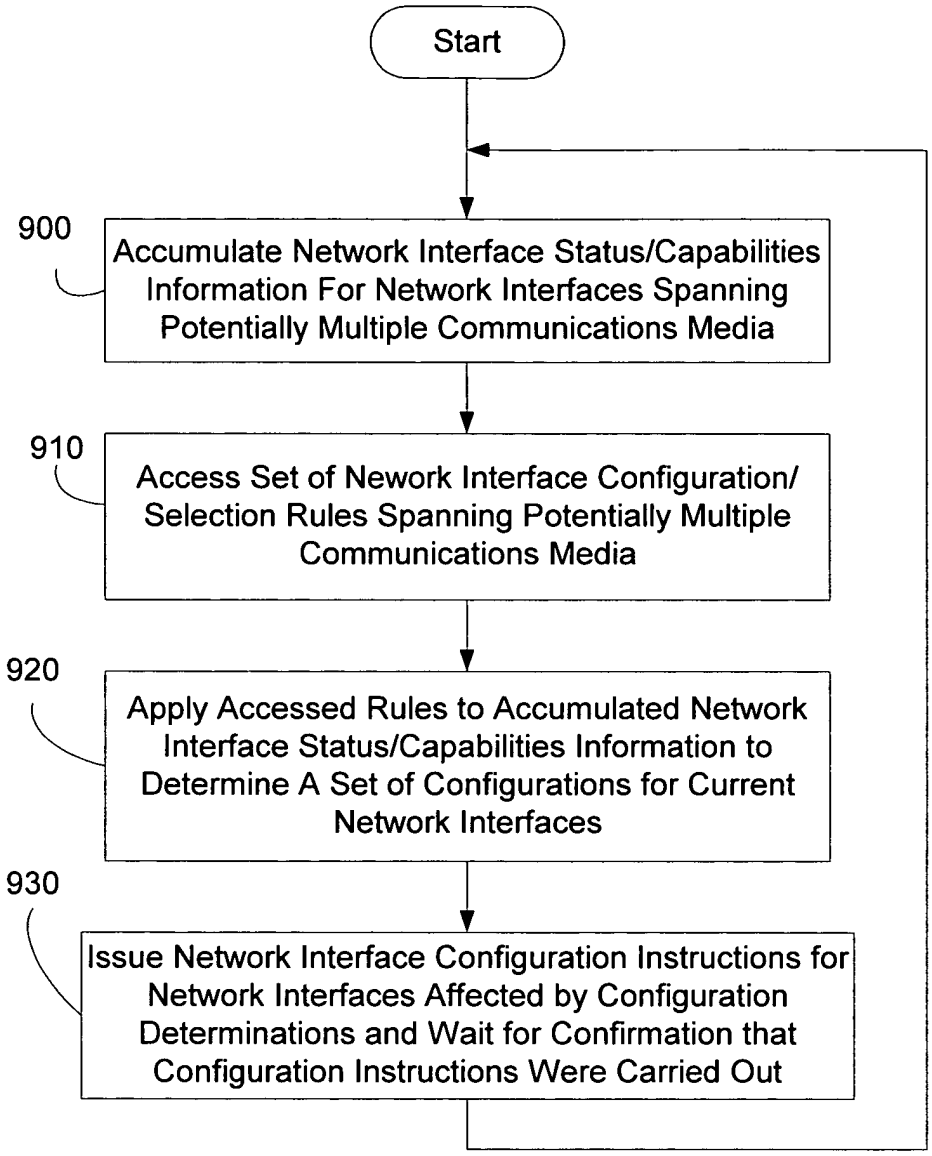
Start
900
Accumulate Network Interface Status/Capabilities Information For Network Interfaces Spanning Potentially Multiple Communications Media
910
Access Set of Nework Interface Configuration/ Selection Rules Spanning Potentially Multiple Communications Media
920
Apply Accessed Rules to Accumulated Network Interface Status/Capabilities Information to Determine A Set of Configurations for Current Network Interfaces
930
Issue Network Interface Configuration Instructions for Network Interfaces Affected by Configuration Determinations and Wait for Confirmation that Configuration Instructions Were Carried Out

FIG. 9

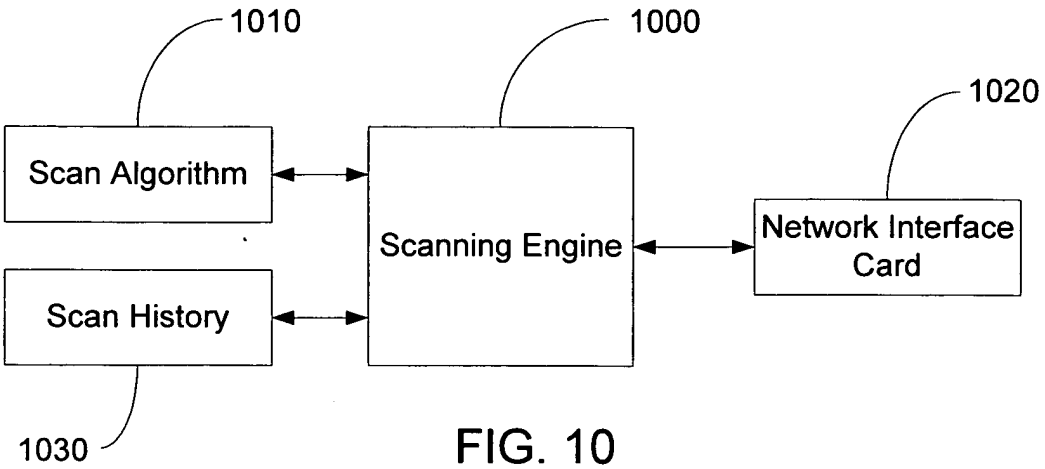
1010
1000
1020
Scan Algorithm
Scanning Engine
Network Interface Card
Scan History
1030

FIG. 10

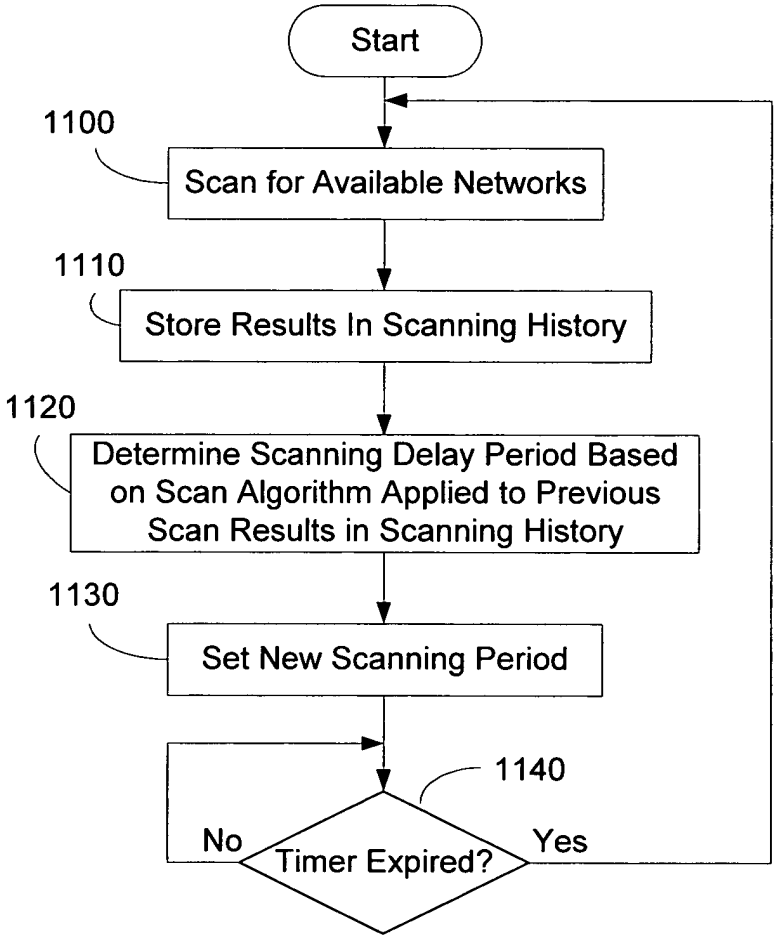
Start
1100
Scan for Available Networks
1110
Store Results In Scanning History
1120
Determine Scanning Delay Period Based on Scan Algorithm Applied to Previous Scan Results in Scanning History
1130
Set New Scanning Period
1140
No
Timer Expired?
Yes

FIG. 11